UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

February 1961

Part II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

CONTENTS

	Page
Navy Vessels Catch 447 Albacore in 1960.....	2
Topographic Chart No. 10.....	7
Sea-surface Temperature Charts, Eastern Pacific Ocean, February 1961.....	7

Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 6121, Pt. Loma Station
San Diego 6, California

* Part I - "Fishery Products Production and Market Data" is issued by the Bureau of Commercial Fisheries, Market News Service, Post Office Building, San Pedro, California

NAVY VESSELS CATCH 447 ALBACORE IN 1960

Ships of the U. S. Navy, Radar Picket Squadron One, caught 447 albacore in the eastern Pacific Ocean in 1960. Ships of this squadron troll for albacore to assist the U. S. Bureau of Commercial Fisheries in a Tuna Oceanography Program. When on station, the ships are ideally positioned (station locations given in table 1) to acquire significant data regarding albacore migration and distribution. Eleven vessels of the AGR and DER type rotate duty at the five stations; each station is manned continuously. In return for trolling equipment furnished by the Bureau of Commercial Fisheries, the Ships submit logs containing albacore catch data to the Bureau at the end of each trip.

Station	Position		Number of albacore caught	Date of first catch	Date of last catch
	Lat.	Long.			
1	49° N.	129° W.	0	-	-
2	45° N.	130° W.	19	15 July	20 July
3	40° N.	129° W.	245	10 July	11 September
4	36° N.	128° W.	144	14 June	24 October
5	32° N.	124° W.	39	5 June	30 June

TABLE 1.--Number of albacore caught at each station by Navy picket vessels in 1960 and dates of first and last catches.

The U. S. S. KOINER'S catch of 155 albacore was the top catch for any one vessel. The U. S. S. TRACER followed closely with a catch of 130 albacore. Although some of the ships were unsuccessful in their trolling, it was as equally important to us to know in our studies of offshore distribution of albacore that ships were trolling in certain regions with negative results as it was to know that albacore were being caught in other areas. It was only through the cooperation of all ships that we were able to derive a significant picture of the offshore distribution of albacore in 1960.

Scientists from the California Department of Fish and Game have found that, usually, the best albacore fishing occurs in 60° - 64° water. Catch-sea temperature relationship derived from the data obtained by the pickets supports this finding. Very nearly the entire catch was made within the 60° - 64° range (figures 1A - 1B). Three fish caught in October at station 4 are not included in the figures. It should be noted, however, that in July and August when most fish were caught (table 2) ships were trolling, for the most part, only in water within that temperature range.

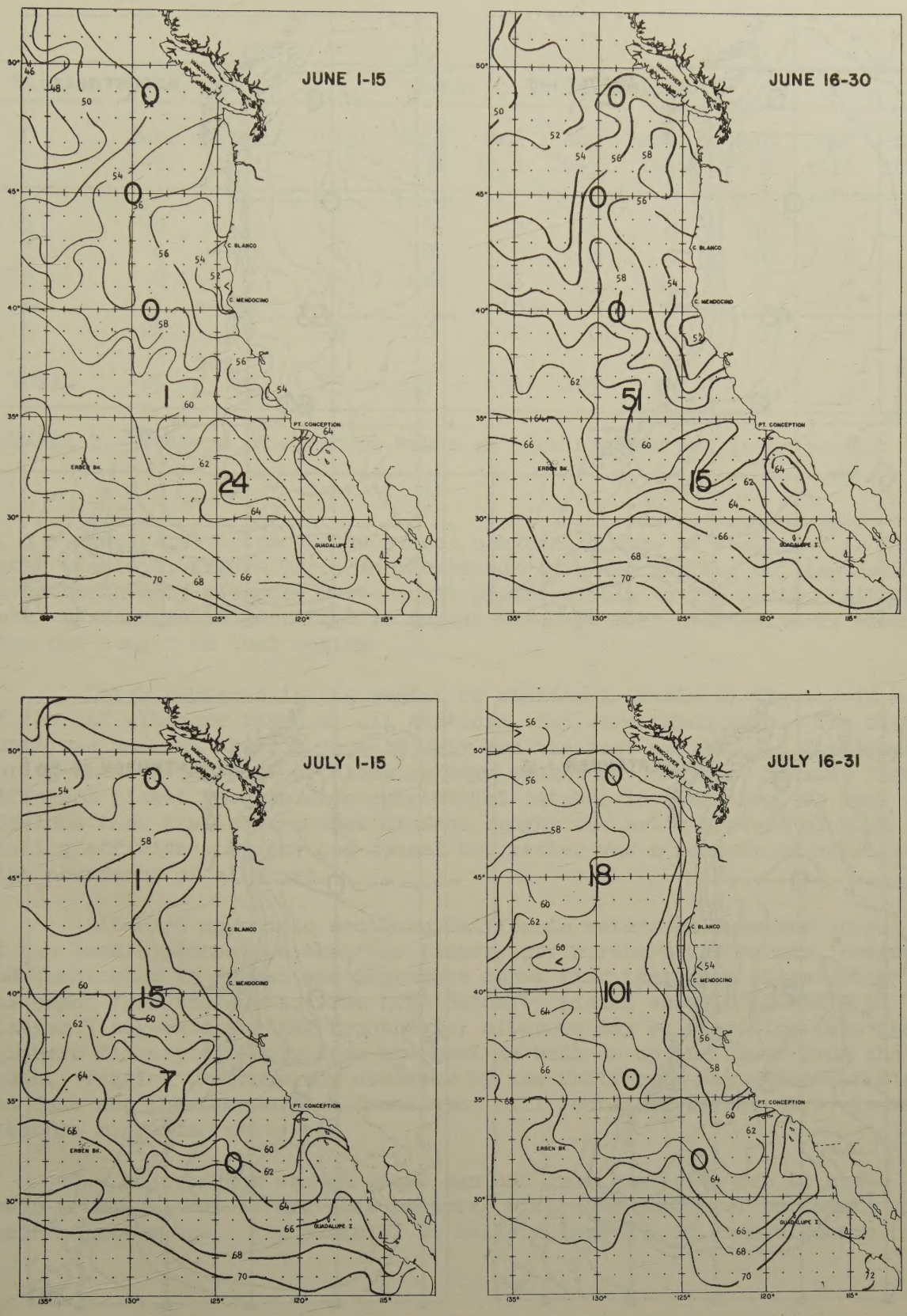


FIGURE 1A.--Albacore catch by Navy picket vessels in June and July 1960. Large numerals are number of albacore caught at each of the five stations occupied by pickets. Small numerals are water temperatures.

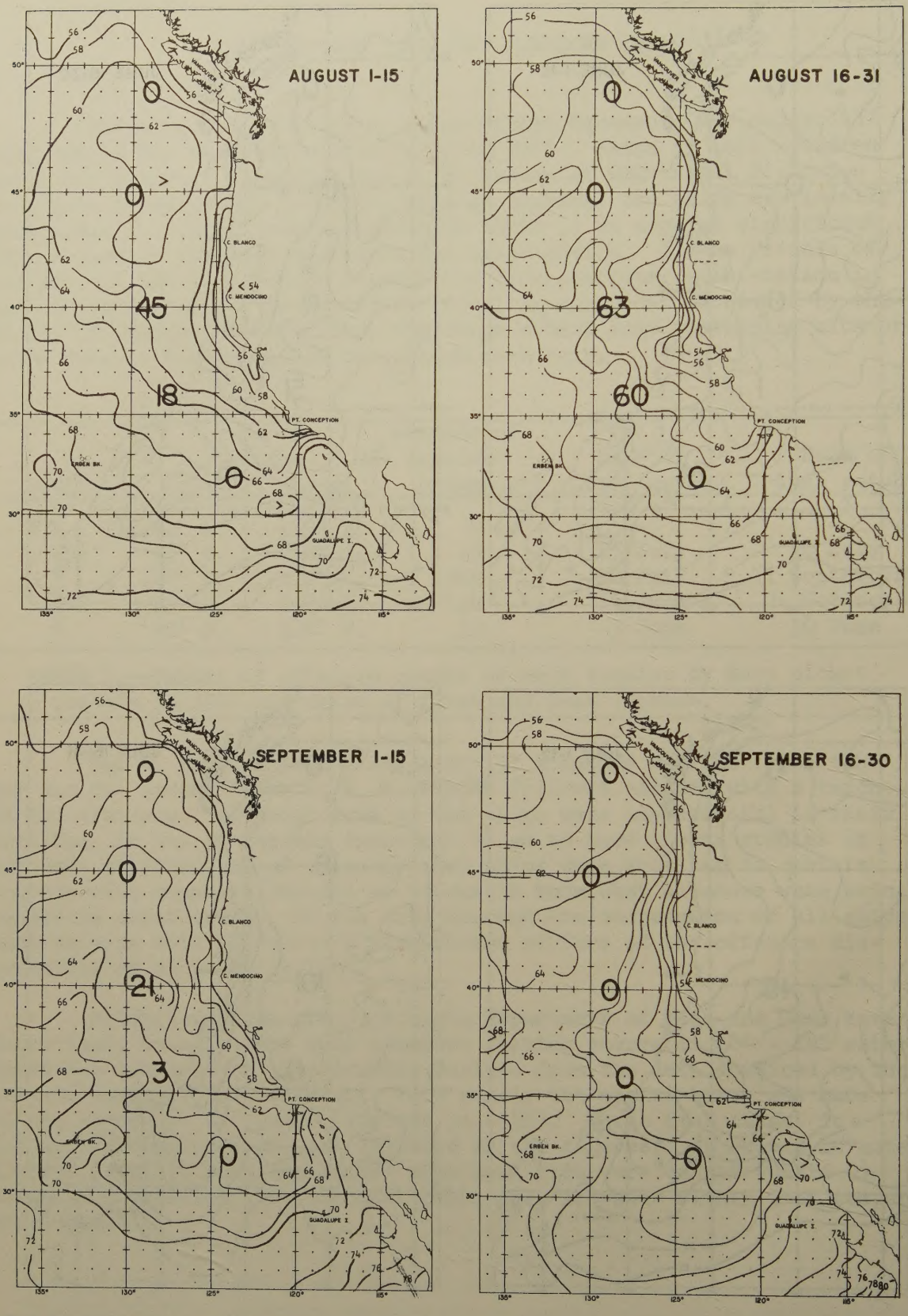


FIGURE 1B.--Albacore catch by Navy picket vessels in August and September 1960. Large numerals are number of albacore caught at each of the five stations occupied by pickets. Small numerals are water temperatures.

Station	Catch By 15-day Period									
	June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30	Oct 1-15	Oct 16-31
1	0	0	0	0	0	0	0	0	0	0
2	0	0	1	18	0	0	0	0	0	0
3	0	0	15	101	45	63	21	0	0	0
4	1	51	7	0	18	60	3	0	3	1
5	24	15	0	0	0	0	0	0	0	0
TOTAL	25	66	23	119	63	123	24	0	3	1

TABLE 2.--Numbers of albacore taken at each station by 15-day period.

The first catch of the season occurred 5 June at station 5 in 61° water (table 1; figure 1A). As the season advanced and the 60° isotherm moved northward, albacore were caught progressively to the north. Although water as warm as 60° occurred in August and September at station 1, albacore were not caught in that region.

Catch centered in the region of station 3 (table 1; figures 1A - 1B). Of the 447 albacore taken at all stations, 245 were taken here. The first catch was made at station 3 on 10 July and the last was made 11 September. During this 63-day period, albacore were caught on 53 days. Because three different picket vessels made substantial catches in this area, we may conclude that the large number of fish caught was not a measure of high fishing efficiency by any one vessel but rather was a measure of relatively high abundance of albacore.

Albacore move into southern California waters in June and July. It has been hypothesized that the fishery off northern California, Oregon, and Washington in August and September takes fish that have migrated up the coast from the south. The high catch by picket vessels offshore at station 3 suggests another hypothesis; albacore may be migrating into the northern fishery directly from the west as well as up the coast from the south. Tagging programs now underway by the California Department of Fish and Game and the Oregon Fish Commission will certainly define more clearly albacore migration patterns.

We do not know enough about age and growth of albacore to state their true age, but we are able to infer with some degree of certainty their relative age. For example, we believe that the 26 inch albacore

(approximately a 12 pound fish) caught by the pickets is one year older than the 22 inch fish (approximately an 8 pound fish). Lengths of albacore taken by the pickets ranged from 16 to 35 inches (figure 2). At stations 2, 3 and 5 the most frequent length centered around 26 inches. Lengths of albacore caught at station 4 in August, September and October differed markedly from lengths of those caught in June and July. Albacore caught earlier in the season were for the most part 26 inch fish, whereas those caught later were primarily 22 inch fish.

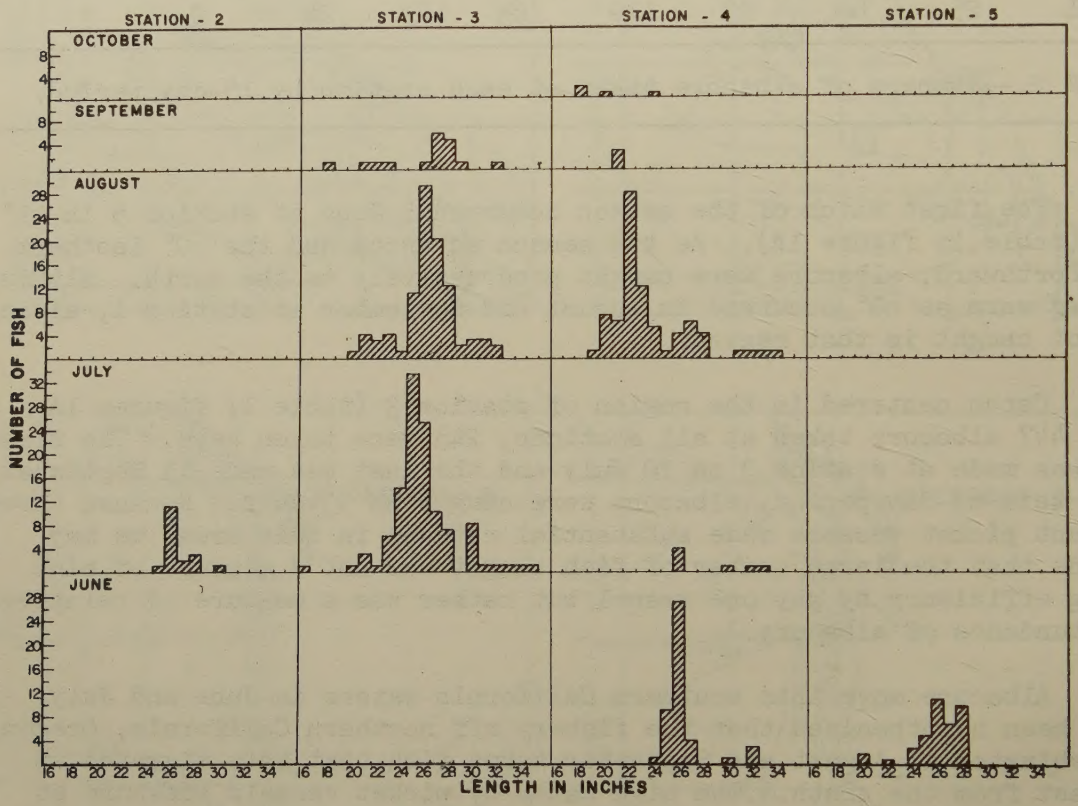


FIGURE 2.--Length-frequencies of albacore caught by Navy picket vessels in 1960.

Picket vessels are again being outfitted for trolling during the 1961 season. It is anticipated that trolling will commence on or about the first of May and will continue through November. Should the vessels sight large schools of albacore or should they catch albacore in large quantities they will notify us by radio and we shall in turn pass the information along to the fishing fleet.

James H. Johnson, Chief
Tuna Forecasting Program

TOPOGRAPHIC CHART NO. 10

Topographic Chart No. 10 showing the character of the ocean floor from 10° N. to 17° N. latitude and 100° W. to 110° W. longitude was distributed this month. Topographic charts may be obtained from an Inter-American Tropical Tuna Commission representative or by writing directly to our San Diego address.

SEA-SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN FEBRUARY 1961

Acknowledgements

The following organizations and stations contributed data for the February 1961 charts:

U. S. Weather Bureau, San Diego, California
U. S. Naval Communication Station Balboa, Fort Amador, Canal Zone
U. S. Navy Branch Hydrographic Office, Honolulu, Hawaii; Seattle, Washington; San Francisco and Wilmington, California
U. S. Coast Guard, Port Hueneme Light Station, Port Hueneme, California
U. S. Bureau of Commercial Fisheries, Biological Laboratories, Honolulu, Hawaii; La Jolla, California; Seattle, Washington
U. S. Bureau of Commercial Fisheries, Exploratory Fishing and Gear Research Base, Seattle, Washington
Hopkins Marine Station, Pacific Grove, California, by J. P. Balesteri
Inter-American Geodetic Survey by Rene Cortes at Salina Cruz, Mexico; David Ortega at Manzanillo, Mexico; Romeo Valencia at Pt. San Jose, Guatemala; Azael Saldana at Pt. Armuelles, Panama; V. E. Castillo at Tumaco, Colombia; Gualberto Tapia at San Cristobal, Galapagos; Jose Lanchimba at La Libertad, Ecuador; E. Lopez at Talara, Peru
Inter-American Tropical Tuna Commission, La Jolla and Terminal Island, California; Piura, Peru
Kelco Company, San Diego, California
Pacific Oceanographic Group, Nanaimo, B.C., by H. J. Hollister from observations by R. W. Collins at Quatsino Lightstation, J. A. Bournazel at Cape St. James Light, B. Stuart at Amphitrite Point Light, J. M. Hartt at Langara Island Light

Scripps Institution of Oceanography, La Jolla, California
by Margaret Robinson and Hans Klein
Ships Frances Salman, Trolleggen, Point Arena, Elin Haven and Besseggen.

Charts

Figure 1.--Mean sea-surface temperatures (°F) derived from approximately 7000 observations. Squares show temperature at weather-ship stations. Numerals on shore are temperatures at coastal and light stations.

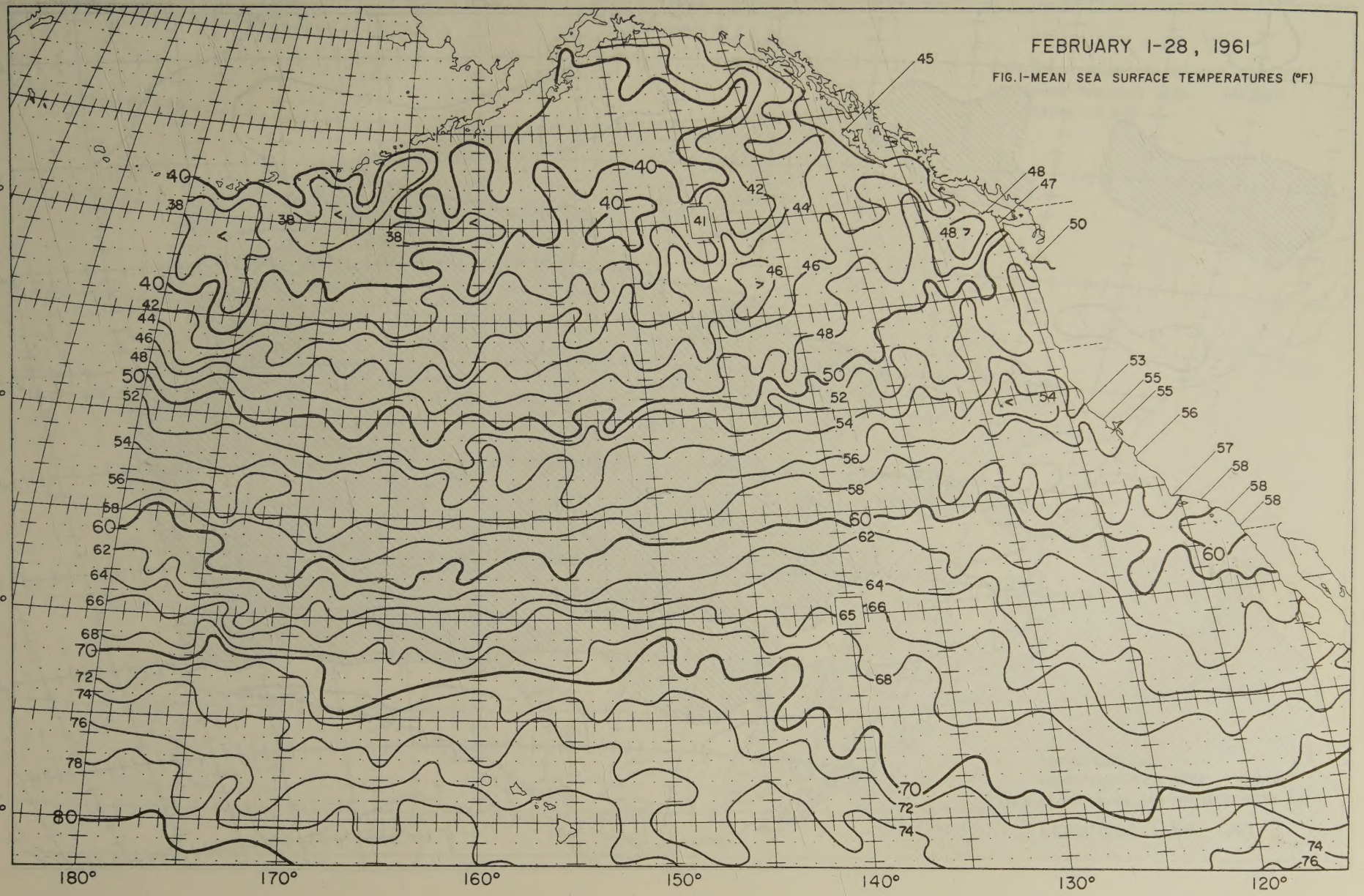
Figure 2.--Deviation of sea-surface temperatures (°F) from long term mean charts of H. O. 225. Hatched areas are colder than mean.

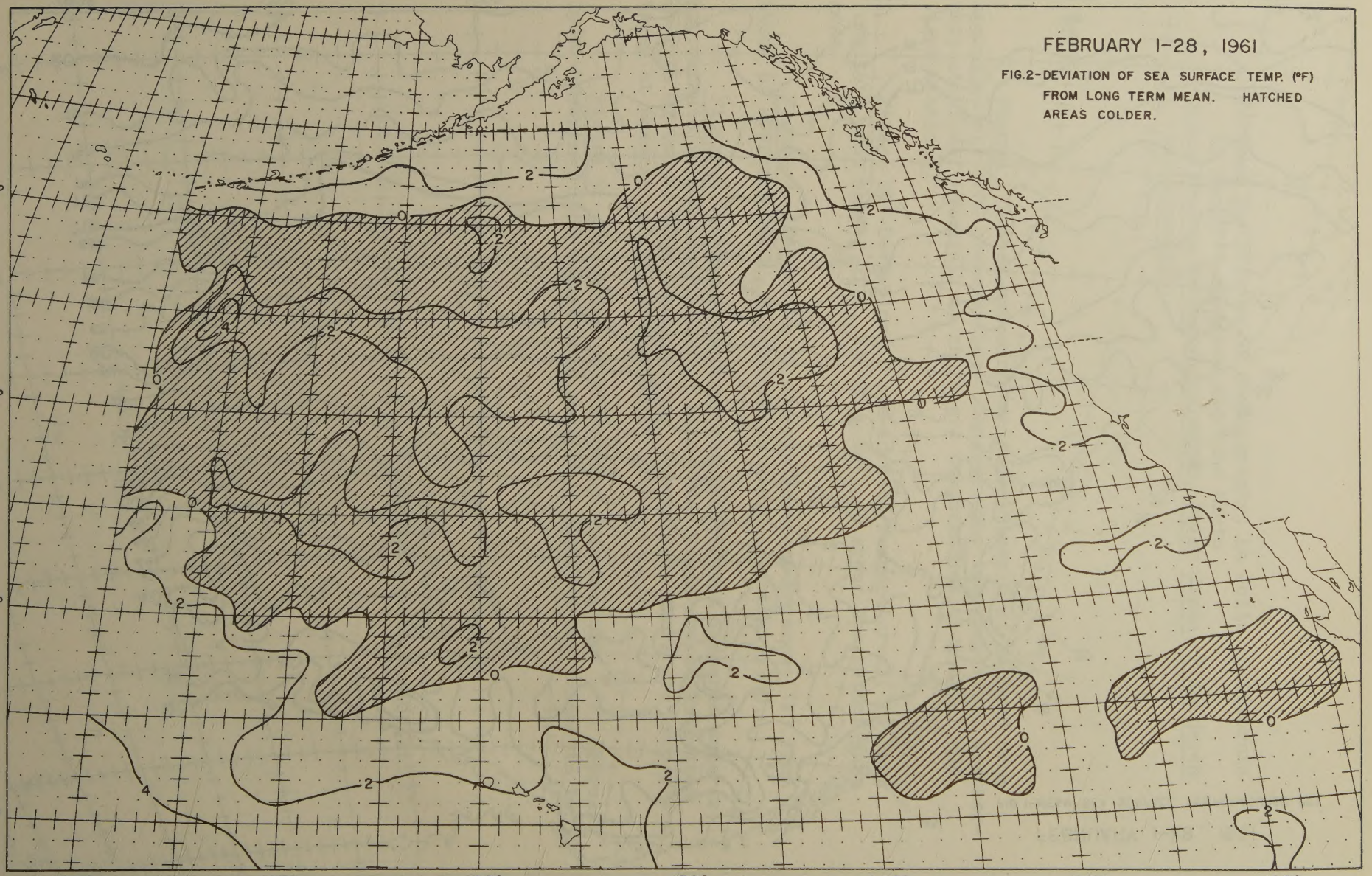
Figure 3.--Deviation of sea-surface temperatures (°F) from those of February 1960. Hatched areas are colder than 1960.

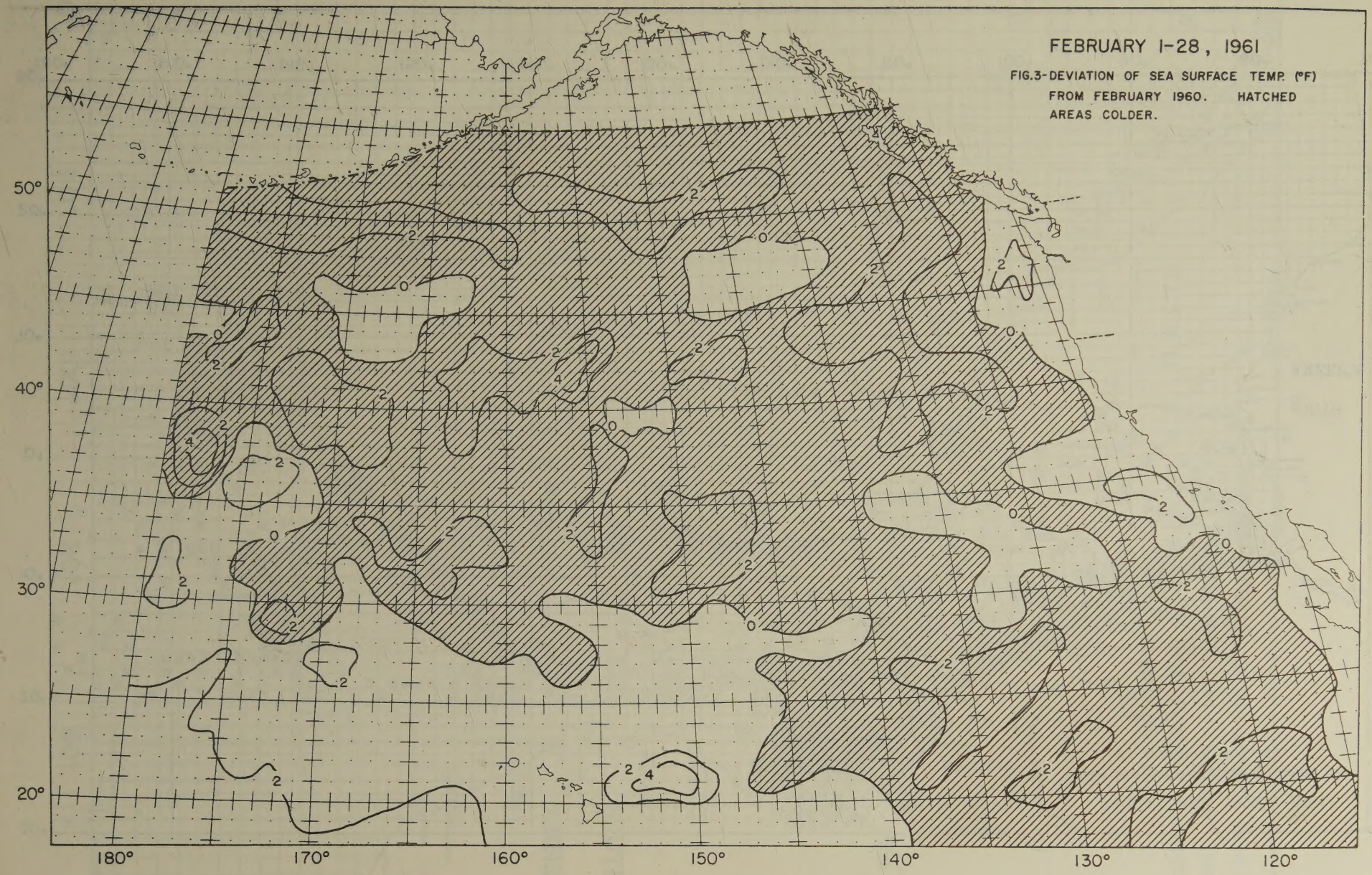
Figure 4.--Sea-surface temperatures (°F) by 1-degree squares, approximately 1800 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal and light stations.

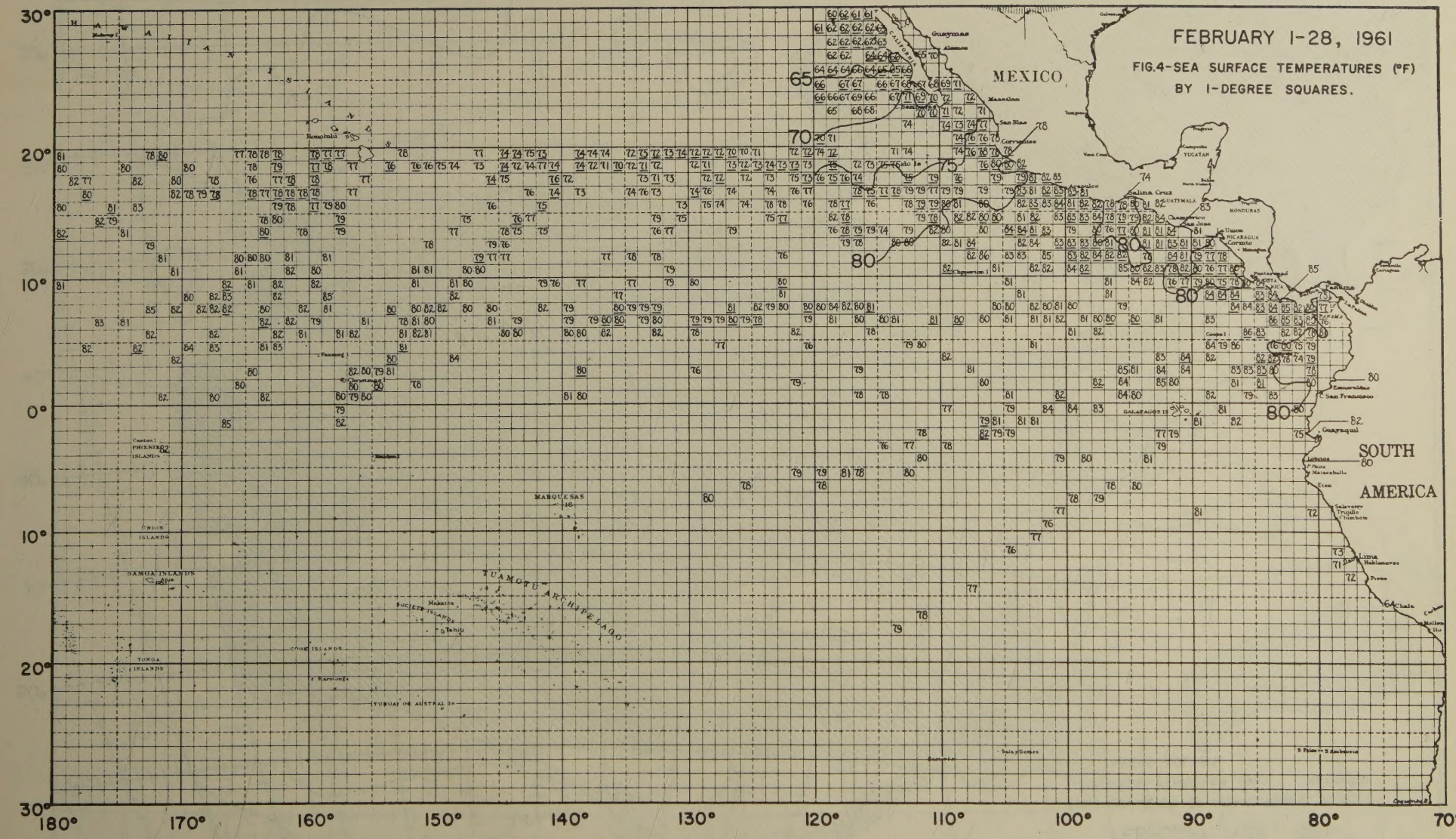
Figure 5.--Deviation of sea-surface temperatures (°F) February 1961 - February 1960 by 1-degree squares. Shaded areas colder in 1961.

James A. Renner
Fishery Research Biologist


FEBRUARY 1-28, 1961
FIG. 1-MEAN SEA SURFACE TEMPERATURES (°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


FEBRUARY 1-28, 1961
FIG.2-DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. HATCHED AREAS COLDER.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


FEBRUARY 1-28, 1961
FIG.3-DEVIATION OF SEA SURFACE TEMP. (°F) FROM FEBRUARY 1960. HATCHED AREAS COLDER.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


FEBRUARY 1-28, 1961
FIG.4-SEA SURFACE TEMPERATURES (°F)
BY 1-DEGREE SQUARES.
MEXICO
SOUTH
AMERICA
HAWAIIAN ISLANDS
Honolulu
MARQUESAS
TUAMOTU ARCHIPELAGO
SOCIETY ISLANDS
Tahiti
COOK ISLANDS
SAMOA ISLANDS
TONGA ISLANDS
UNION ISLANDS
PHOENIX ISLANDS
GALAPAGOS IS
Guaymas
Mazatlan
San Blas
Salina Cruz
GUATEMALA
HONDURAS
NICARAGUA
Guayaquil
Lima
Chala
30°
20°
10°
0°
10°
20°
30°
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°

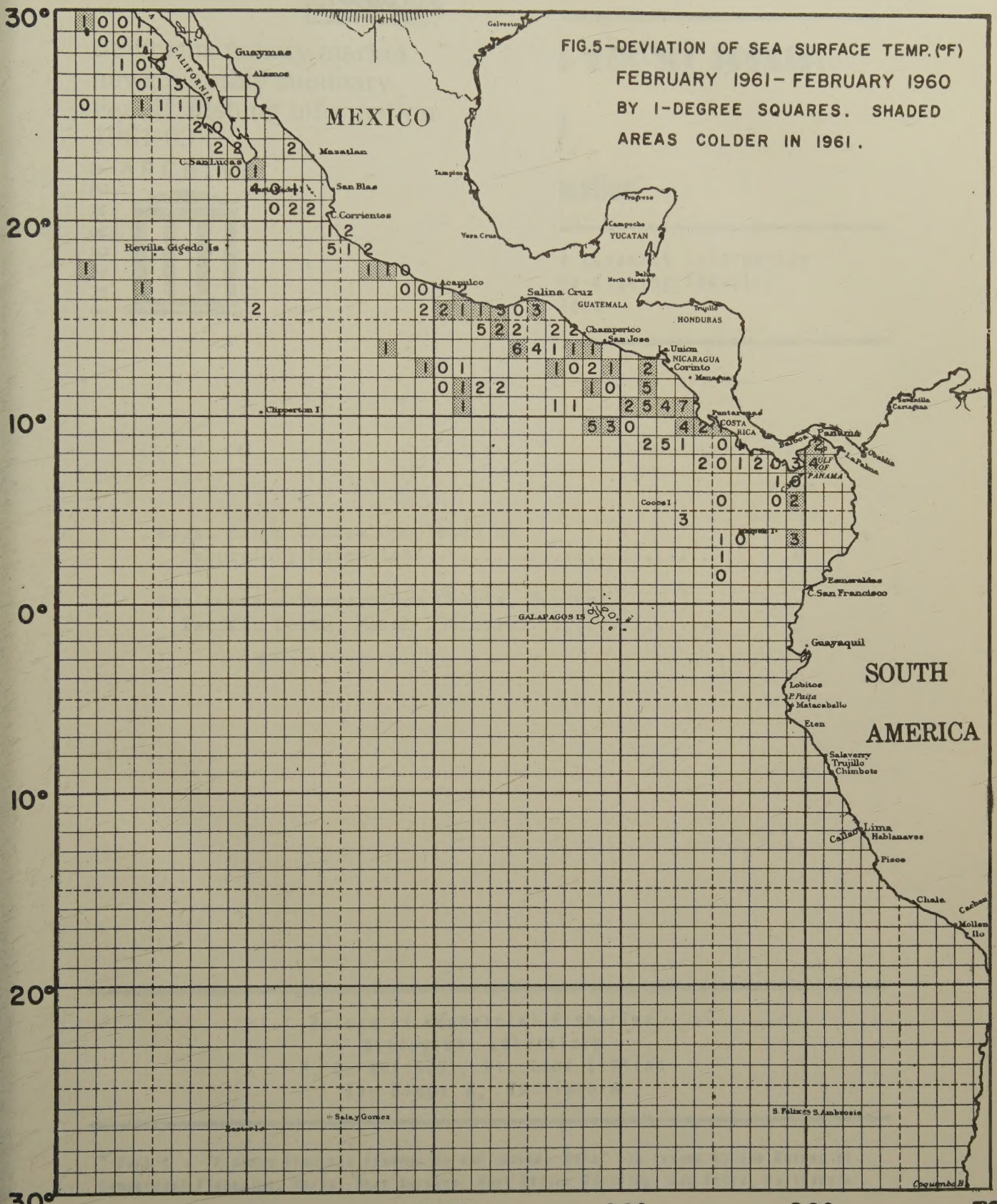


FIG.5-DEVIATION OF SEA SURFACE TEMP.(°F)
FEBRUARY 1961- FEBRUARY 1960
BY 1-DEGREE SQUARES. SHADED
AREAS COLDER IN 1961.
MEXICO
SOUTH
AMERICA
GUATEMALA
HONDURAS
NICARAGUA
COSTA
RICA
YUCATAN
GALAPAGOS IS
Guaymas
Alamos
Masatlan
C.San Lucas
San Blas
C.Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
Champerico
San Jose
Corinto
Chipperton I
Coco I
Guayaquil
Lobitos
P.Pasta
Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Hablanaves
Pisco
Chala
Mollendo
Ilo
Sala y Gomez
S. Felix & S. Ambrosio
30°
20°
10°
0°
10°
20°
30°
120°
110°
100°
90°
80°
70°